MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with selected official ABB reference pages

APC2 / 3ASD573001A1

YPP110A

APC2 APPLICATION CONTROLLER

OFFICIAL SOURCES

ABB DCV 700 pp.8,10; IN/BF 0901 EN p.7; DOCPDCDCYPQ01 Rev B p.1. Reference excerpts, not an installation manual.

I/O Connections

The I/O connections of the DCV 700 are in the Application Controller (APC) and in the Digital Drive Controller (DDC).

The Application Controller APC includes:
- 4 digital inputs
- 2 digital outputs
- 2 analogue inputs
- 1 voltage reference output

The I/O connections in the Drive Controller DDC are used for safety and other drive specific functions like emergency stop and motor temperature measurement:
- 3 digital inputs
- 4 digital outputs
- 5 analogue inputs
- 2 analogue outputs
- 1 pulse encoder input
- 1 emergency stop input
- 1 emergency stop output
- 1 current source
- 1 voltage reference output
- 1 actual armature current output

Optional I/O boards are available to provide tailored solutions for the most demanding applications.

The quantity of I/Os can be increased by using extended I/O board and speed measurement board.

Extended / Remote I/O Board YPQ110A
Connection to the APC can either be through parallel bus (extended) or through low speed serial bus (remote).
- 8 digital inputs
- 8 digital outputs
- 4 analogue inputs
- 2 analogue outputs
- 3 voltage reference outputs

Speed Measurement Board YPH107A
The board can be used for accurate speed and position measurement. Connection to the APC is through the parallel bus. For positioning there is a 32 bit hardware counter.
- 1 digital input for synchronisation
- 1 pulse encoder input
- 2 analogue outputs

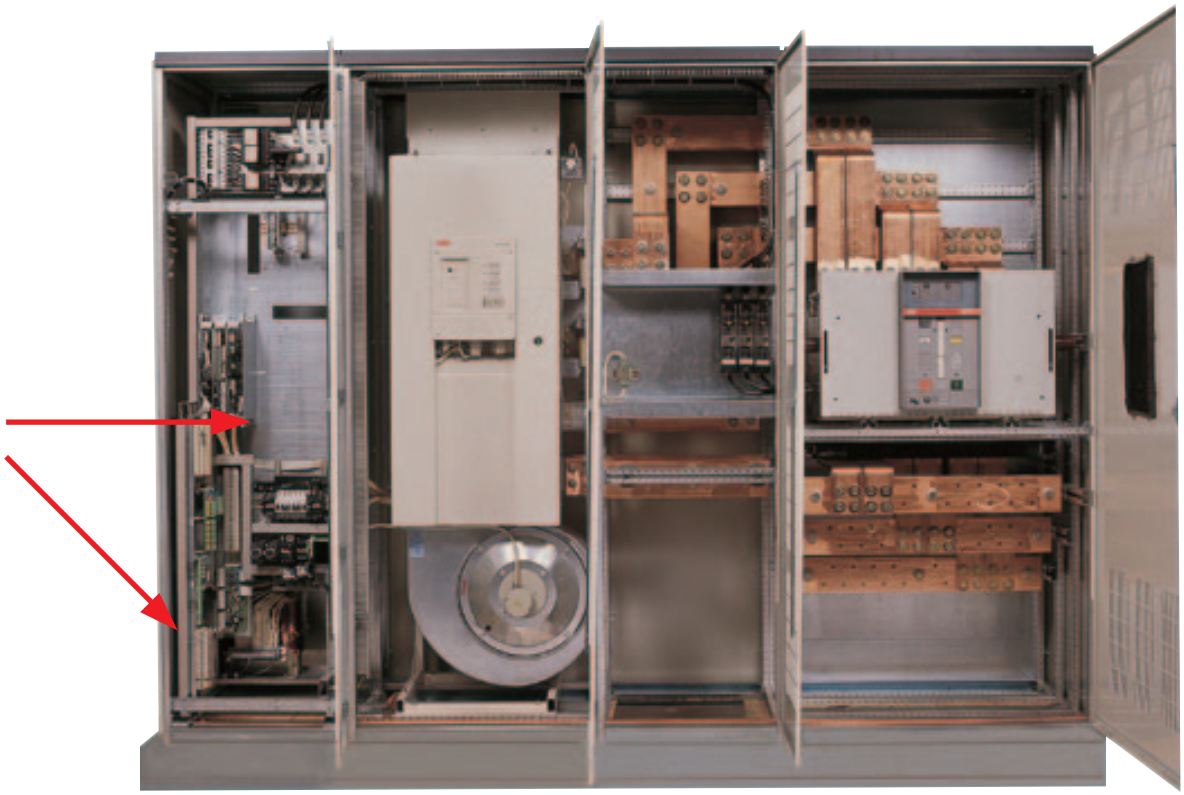


Figure 4. The 5150 A DC converter with air circuit breaker.

Commissioning and Programming

Commissioning, maintenance and programming is easy with the dedicated Windows™ based PC programs.

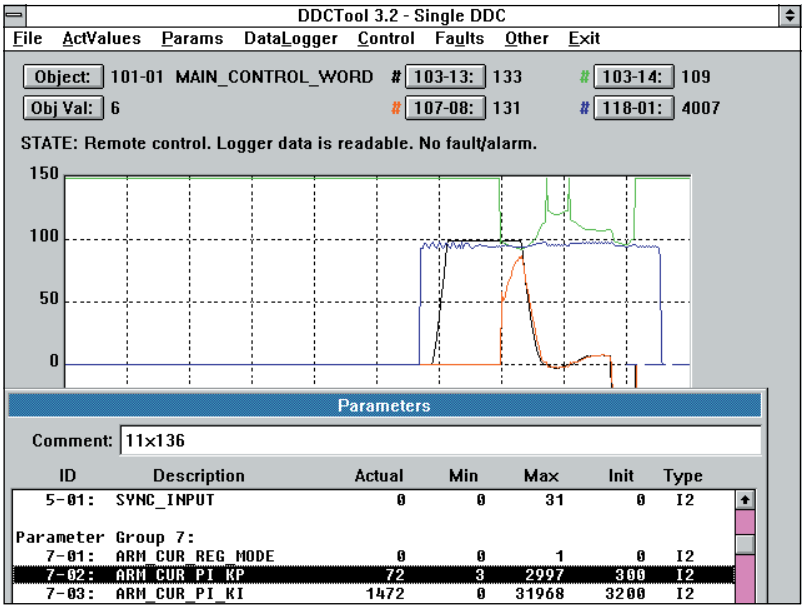
Digital-Drive-Control-Tool (DDCTool) for Commissioning and Maintenance

DDCTool is ABB's new PC program, common for both AC and DC drives.

- Runs under Microsoft® Windows™
- Intuitive, easy-to use
- Graphical User Interface
- Fast response

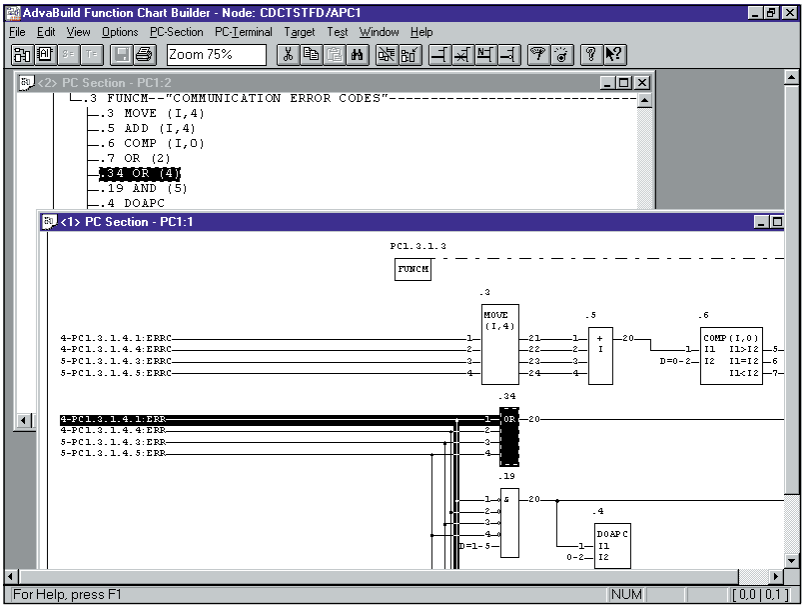
The DDCTool offers the following functions:

- Monitoring of reference and actual values
- Setting, changing, saving, uploading, downloading, and restoring of parameters
- Controlling and displaying data loggers
- Display and clear of the fault logger
- Selection of target drives in multi-drive applications



Engineering Tool for Individual Programming

The application controller (APC2) is a programmable controller by using Adva Build for Windows (FCB).



Microsoft and MS-DOS are registered trade marks, and Windows is a trade of the Microsoft corporation.

In addition, the frequency converter systems are equipped with a touch screen for fast menu-supported display of major operational signals, such as speed, torque, fault and status reports.

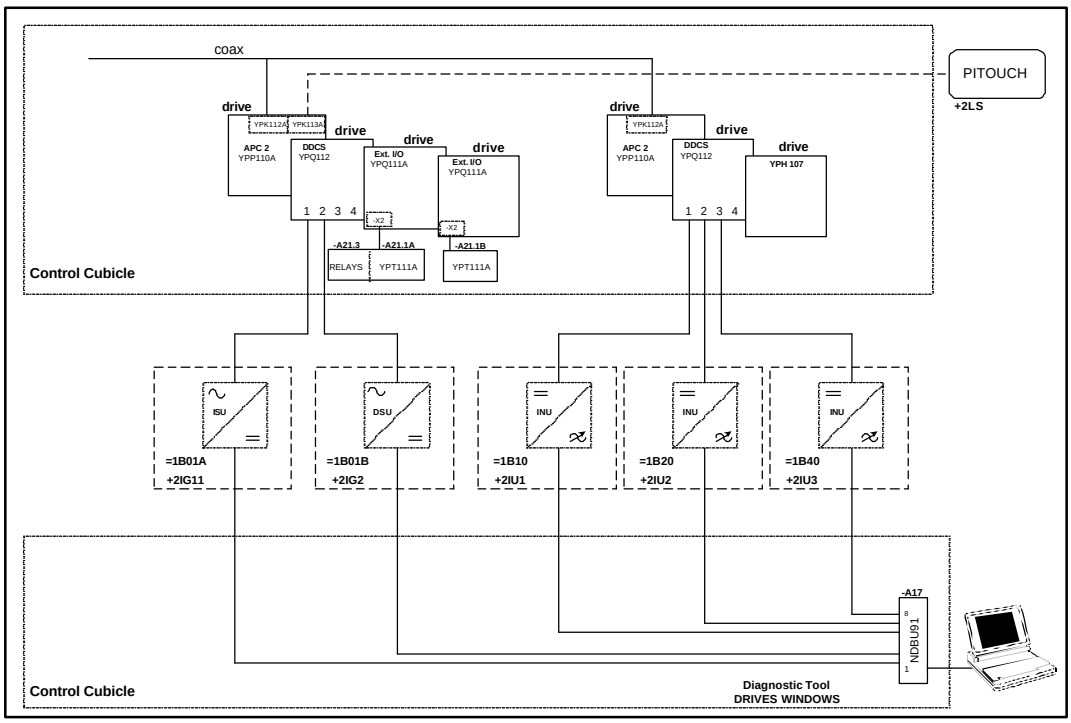


Fig. 9: Diagnostic tools on a conveyor

Summary

Some of the benefits of controlled drives are

- an optimum loading of the belts through controlling the belt speed, depending on the load volume, in the range of 3.0 … 6.0 m/s; reference values are supplied by a laser scanner monitoring the belt load
- a reduction of gear and belt wear through smooth starting and stopping of conveyors
- the elimination of belt slippage at driving drums
- more even torque on driving drums through load equilibration
- control of speed differences between motors on one driving drum

Moreover, the electric drives are characterised by high availability and efficiency as well as little system perturbation.

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YPQ110A board upgrade with YPQ111A board

The extended I/O board YPQ111A as YPQ110A is mounted next to the application controller YPP110A or next to another I/O board. In the case of local I/O it is connected to the I/O bus with a 64-pole ribbon cable at X1, and it is powered from the I/O bus. The same APC application program can be used as with YPQ110A board.

A time-out time can be set by software. When the I/O board has not been updated with new data within the time-out time the outputs are reset. This is not implemented in the local I/O function elements but can be used with remote I/O.

The watchdog function is used in the board. The micro controller in the YPQ111A has to refresh the watchdog once every 100 ms. The watchdog time out period is 1.6 seconds immediately after reset. If the watchdog goes off, all the binary and analog outputs are inactivated and the red LED indicator will turn on and the micro controller is reset.

YPQ111A always needs a connection board YPT111A for connecting the field instruments.

Benefits to upgrade YPQ110A to YPQ111A:

- YPQ111A board contains more channels than YPQ110A:
  - 16 binary inputs
  - 8 binary outputs
  - 8 analog inputs
  - 4 analog outputs
- Time out setting by software
- Watchdog function

1. UPGRADE PROVIDES

- YPQ111A EXTENSION I/O BOARD (code 61248285 in Parts OnLine)
- YPT111A TERMINAL BLOCK BOARD (code 61205055 in Parts OnLine)
- Assembly of the boards and the cabling work

2. UPGRADE DOES NOT PROVIDE

- Repair work and spare parts for repair, which will be charged according to the valid price list
- Assistance
- Waiting time caused by the customer or his actions

3. LIABILITIES OF THE PARTIES

The supplier is responsible for the defined preparation for and performance of the upgrade, and any reporting during the time agreed. When necessary, the customer is responsible for implementing actions identified in the service report. The customer is responsible for providing all available information of the system. The customer is responsible for providing assistance. The supplier must also have free access to the system for the upgrade during the shutdown as agreed, and the upgrading must be planned well in advance in order to reserve resources and service parts needed. In addition, it has to be possible to operate the system under its normal conditions.

4. OTHER TERMS AND CONDITIONS

The General Conditions of Orgalime SE 01 are applied for all deliveries and installations.

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Specifications subject to change without notice.